THE ASSOCIATION OF MATERNAL DIET DURING PREGNANCY AND ANOGENITAL DISTANCE IN CHILDREN OF THE RHEA BIRTH COHORT IN CRETE, GREECE

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Background and aims: Dioxins and dioxin-like compounds bioaccumulate through the food chain and act as endocrine disruptors. Diet during pregnancy is the main source of *in-utero* exposure to dioxins, with meat, fish, and milk intake as the main contributors. In animals, anogenital distance is used as an indicator of *in-utero* androgenic exposure. Only few human studies evaluated the association between *in-utero* exposure to environmental pollutants and anogenital distance in newborns, with inconsistent results. We examined the association between diet during pregnancy and anogenital distance in children in a population based mother child cohort in Crete (Rhea study).

Methods: We studied 492 mother-child pairs (mean age: 18 months, range: 4-36 months) from the Rhea study. Maternal dietary intake during pregnancy was assessed by a validated food frequency questionnaire. Daily frequencies were multiplied with portion sizes to estimate food intake in grams per day. Anogenital distance (AGD-anus to upper penis), anoscrotal distance (ASD-anus to scrotum) and penis width (PW) were measured for boys; anoclitoral (ACD-anus to clitoris) and anofourchetal distance for girls (AFD-anus to fourchete). Ratios of anogenital distances divided by body weight were calculated. Dietary intake was categorized in tertiles (using the lowest tertile as reference) and multivariate linear regression models were used.

Results: Higher meat and high-fat meat intake was associated with shorter anogenital distance especially for boys (p for trend<0.05 for ASD). Pregnant women in the highest tertile of high-fat meat intake (>70gr/day) gave birth to boys with shorter ASD (b coefficient -2.8; 95%CI: -5.16,-0.49), and ASD weight-ratio (b coefficient -0.24; 95%CI: -0.45,-0.02), in early childhood. No associations were found for fish and dairy intake.

Conclusions: The findings from this study suggest a potential association between high fat meat intake during pregnancy and shorter anogenital distance in male children, in Greece.